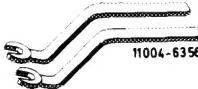
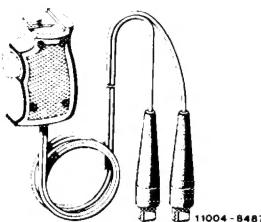


05-250 Removal and installation of valve springs

Valve clearance	with engine cold (approx. 20 °C)	with engine warm (60 °C ± 15 °C)
Intake	0.10 ¹⁾	0.15 ¹⁾
Exhaust	0.35	0.40

¹⁾ 0.05 mm higher during lasting outside temperatures below -20 °C.

Tightening torques	Nm
Nuts for cylinder head cover	15
Rocker arm bearing brackets to cylinder head	38

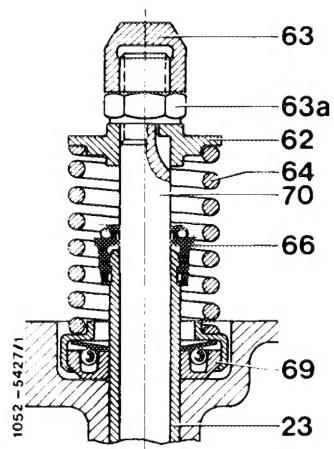
Special tools		
Valve adjusting wrench 14 mm (2 each)	 11004-6356	615 589 00 01 00
Holding wrench for valve spring retainer	 11004-7118	615 589 00 03 00
Socket 27 mm, 1/2" square, for rotating engine	 11004-8193	001 589 65 09 00
Contact handle for rotating engine (component of compression pressure recorder 001 589 46 21 00)	 11004-8487	001 589 46 21 08

Note

Each valve has one valve spring (64) and one rotocap (69).

On engines with long service life, it is recommended to renew rotocaps at the same time.

23 Valve guide	66 Valve stem seal
62 Valve spring retainer	69 Rotocap
63 Cap nut	70 Valve
63a Counternut	
64 Valve spring	



Valve springs with higher spring tension are installed on engine 617.950 since January 1979 and on engines 617.951/952 since start of series (05-260).

On engine 617.950 (USA) starting model year 1980 with increased output and on engines 617.951/952, do not install valve spring, part No. 180 053 06 20.

On the other hand, on engine 617.950 (USA) up to model year 1980 with increased output, valve spring part No. 615 053 01 20 may also be installed.

Start of series

Engine	Starting chassis No.
617.950	006303
617.951/952	start of series

Identification:

Valve spring, part No. 180 053 06 20, two green or purple-green color dots.

Valve spring, part No. 615 053 01 20, two yellow or purple-yellow color dots.

Renew damaged cap nuts (63).

Cap nuts are available in three versions:

1st version

Cap nut with small supporting surface (A).

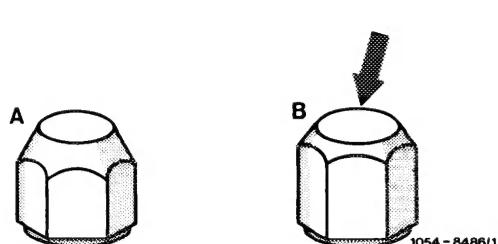
2nd version

Cap nut reinforced in upper range, with larger supporting surface (B).

3rd version

Cap nut reinforced in upper range and hard-chromed.

Identification: silver colored.



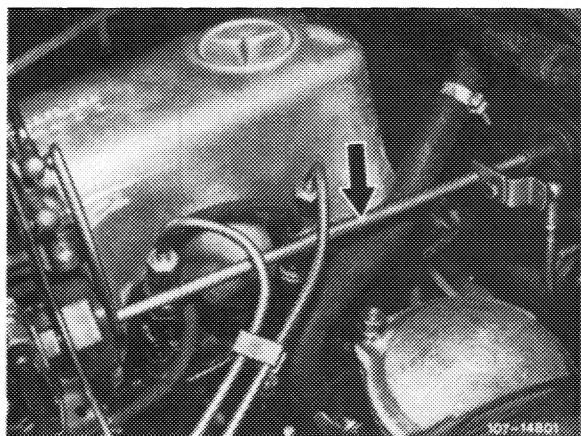
On engines with chilled cast iron camshaft and rocker arms with carbide facing, only the hard-chromed cap nut may be installed.

The hard-chromed cap nut can also be installed on engines with chilled cast iron camshafts and rocker arms with inductance-hardened and hard-chromed running surface.

Spare parts (ET) Sindelfingen will keep only hard-chromed cap nuts in stock.

Removal

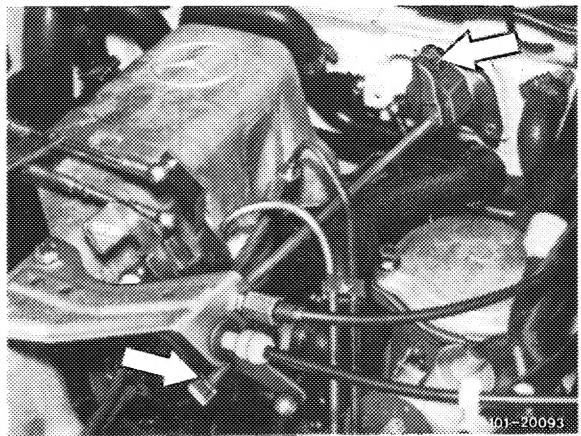
1 Disconnect regulating linkage to remove cylinder head cover. Pull out locking eye of longitudinal regulating shaft (arrow).



Model 116.120

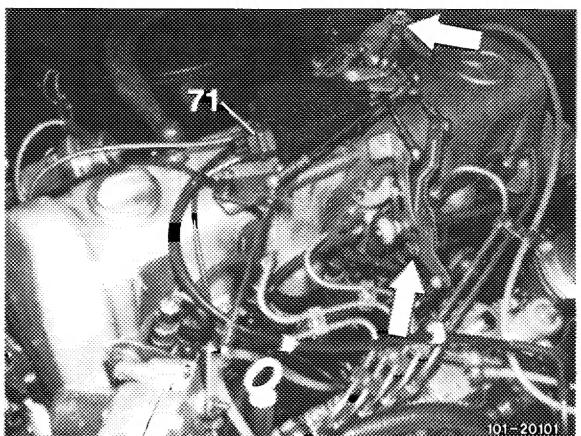
On models 116.120 and 123, pull longitudinal regulating shaft out of rubber mount in forward direction and remove in rearward direction.

On model 126.120 pull longitudinal regulating shaft out of guide lever in rearward direction and remove in forward direction.



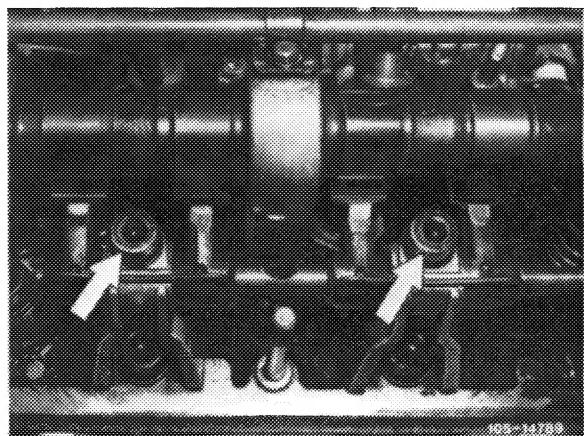
Model 123

On models 123 with automatic transmission 722.303 (W 4 A 040) and 126.120, disconnect central plug for vacuum lines (71) or vacuum lines. Disconnect Bowden wire, compress black plastic clip (arrow) and pull Bowden wire out of holder in rearward direction.



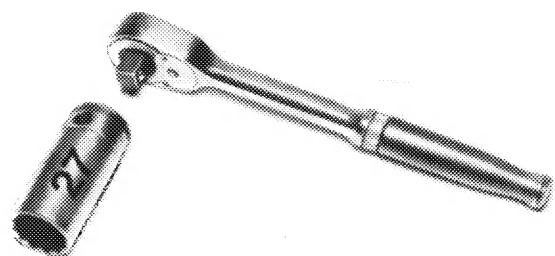
Model 126.120

2 Remove rocker arm with rocker arm bearing brackets (05-235).



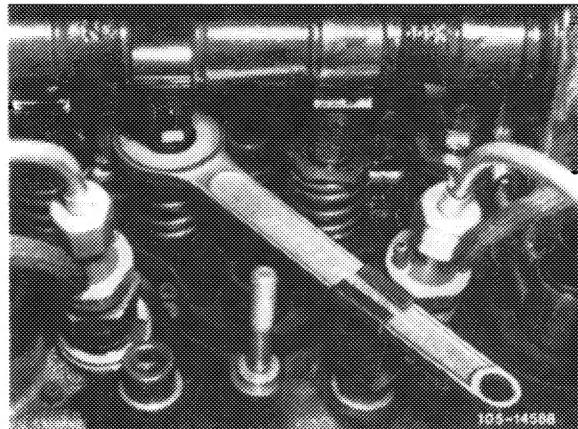
3 Set piston of respective cylinder to ignition TDC.

For this purpose, rotate crankshaft with tool combination.



1100-6498/1

4 Place holding wrench on valve spring retainer.



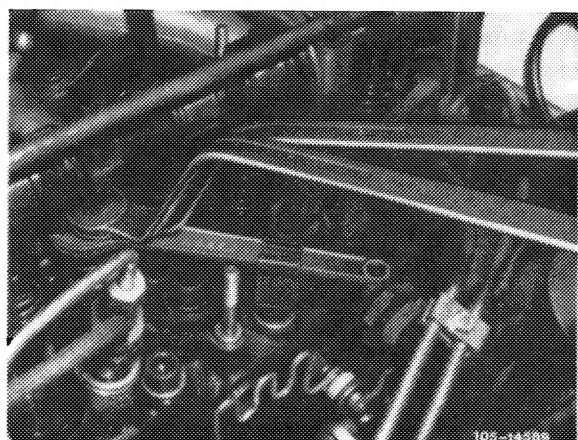
5 Unscrew cap nut (63) by means of valve adjusting wrench.

For this purpose, apply counterhold to counternut (63a) by means of second valve adjusting wrench.

6 Unscrew counternut (63a).

7 Remove valve spring retainer and valve spring.

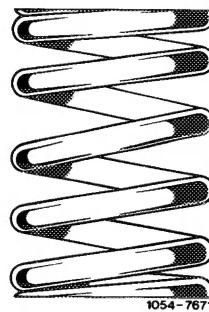
8 Check valve spring, renew according to condition (05-260).



105-14588

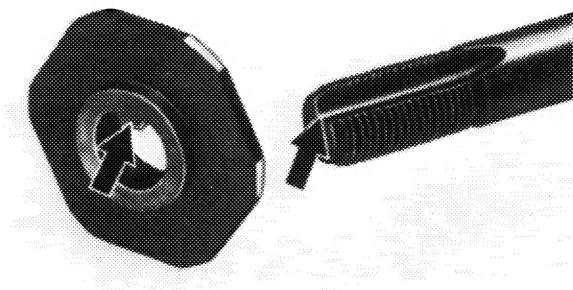
Installation

9 Insert valve spring with narrow coils toward cylinder head (color dots at top).



10 Mount valve spring retainer.

Lug on valve spring retainer (arrow) should be seated in groove on valve stem.



11 Screw on counternut and cap nut.

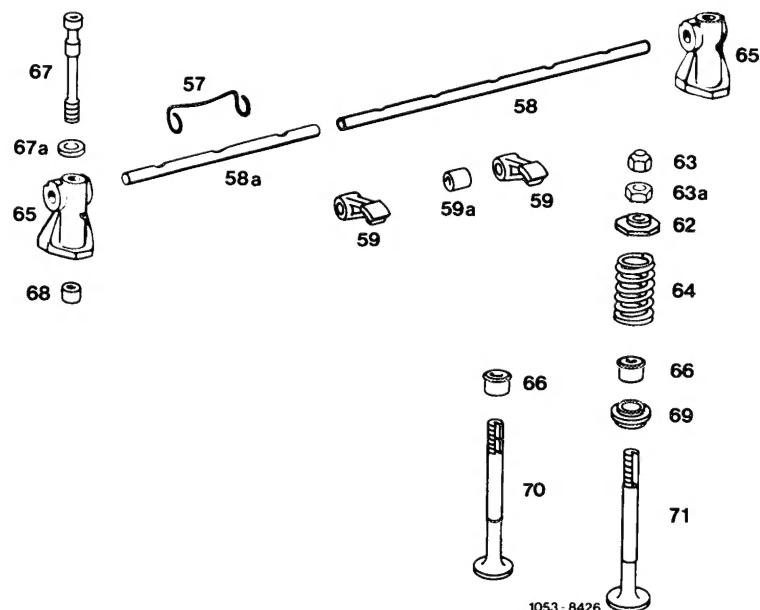
12 Install rocker arm with rocker arm bearing brackets (05-235).

13 Adjust valve clearance (05-210).

14 Mount cylinder head cover.

1055-15741

Valve timing



57 Tensioning spring	65 Bearing bracket
58 Rocker arm shaft	66 Valve shaft seals
58a Rocker arm shaft	67 Screw
59 Rocker arm	67a Washer
59a Rocker arm bearing bushing	68 Fitted sleeve
62 Valve spring retainer	69 Rotocap
63 Cap nut	70 Intake valve
63a Counternut	71 Exhaust valve
64 Valve spring	